

Remarks

At present, claims 1-18 stand rejected under 35 U.S.C. § 103(a) based upon the patent to Cookmeyer II, et al. (US Patent number 6,363,384 issued March 26, 2002, based upon a patent application filed on June 29, 1999) in view of the article by Cheng Song et al. titled "Optimizing Bulk Data Transfer Performance: A Packet Train Approach." In light of the comments presented below, this rejection is respectfully traversed.

Preliminarily, and as a matter of clarification to avoid any possibility of confusion, it is noted that the subject patent to Cookmeyer et al. referred to above does indeed bear patent number 6,363,384 which is to be distinguished from the other patent to Cookmeyer et al. which is also of record in the present application. Also, as a matter of formality, it is noted that the response herewith is being submitted with a request for a one-month extension of time. Accordingly, the Examiner will find herein a transmittal sheet covering the expense associated with this extension of time which was necessitated by the simultaneous occurrence of a number of response due dates beyond the control of the applicants' attorney.

It is noted that, while there are certain broad brush similarities between applicants' claims and the teachings found in the patent to Cookmeyer et al., a close reading of the material in the cited patent will reveal that in fact there are a number of significant differences. In general, it is noted that applicants' claims are directed to a method for optimizing the transfer of bulk data between computer systems through the generation of performance parameters that are specifically designed to achieve maximum data throughput. Applicants' claimed method then is seen as a process for setting up a situation for optimal transfer of bulk data between computer systems each of which possesses storage devices which are capable of holding large amounts of

data. Accordingly, it is seen that applicants' claimed process is a method for establishing the proper parameters for the bulk transfer of data. Applicants' claimed method involves the gathering of throughput relevant information, particularly information relating to the storage devices. In this regard, it is noted that applicants' claims are essentially prospective in nature and deal with a transfer of bulk data that has not yet occurred but which, when it does occur, is carried out in a manner in which throughput is maximized. In particular, it is noted that throughput is a quantity typically measured in, say, gigabytes per hour. Additionally, it is noted that applicants' claimed process contemplates scenarios in which the referenced throughput information is typically fixed throughout the transfer process.

With respect to both of the documents cited by the Examiner, it is noted that they are specifically directed to network-centric operations. In contrast, applicants' claimed invention is focused upon system-centric information. In particular, applicants' invention contemplates the use of information relating to storage systems and subsystems. In this regard, the Examiner's attention is directed to the paragraph beginning line 4 through line 11 of page 7 of applicants' specification. This paragraph is cited below for the convenience of the Examiner:

"By means of the knowledge base it has also to be determined whether parallel sessions have to be used and how many of them. This depends on the throughput of the network connections and further on a response to the questions of how many storage servers are available, how many tape drives per storage server are available, what is the throughput of the tape drives, how many disk storage devices are attached to which disk controller and how are the files distributed over the disk storage devices."

The art cited by the Examiner does not teach, disclose or suggest the utilization of throughput related information associated with the drive or storage systems or subsystems. In contrast, it is noted that applicants' Claim 1 does recite the gathering of

throughput relevant information from system components that are involved in the transfer. Clearly, these components would include the storage devices. Consideration of this information is completely absent from the two cited documents, both of which are network-centric (that is, more outwardly focused) as opposed to being system-centric (that is, more inwardly focused) as described above.

It is furthermore noted that the patent to Cookmeyer et al. is based upon the collection of statistical information. In this regard, the Examiner's attention is directed to column 14, lines 35-40, of the patent to Cookmeyer et al. wherein it states as follows:

“The above described hierarchy of rules also includes a plurality of heuristic algorithms, which are performed by the PAM signal processor 75 and/or the host computer 26 as a background process to the real-time capture and analysis of the network frames.”

As is generally understood, the term "heuristic" refers to non-deterministic algorithms. However, as described in applicants' specification, particularly with respect to the storage system information, the algorithms and the throughput relevant information are all deterministic in nature.

Furthermore, the Examiner points to Column 19, lines 48-58, of the patent to Cookmeyer et al. In this regard, it is noted that the subject paragraph begins with the following sentence:

“The expert system of the present invention combines a rules based knowledge base together with a structured interview analysis which allows the user to follow interview questions in focusing the problem definition.” [Emphasis added here.]

From the above, it is clear that the system of Cookmeyer et al. fully contemplates a high level of involvement with a user. In contrast, the claims of applicants' invention do not contemplate any significant level of user involvement. In this regard, the Examiner's attention is directed to page 2, lines 24-26, of applicants' specification wherein it is stated that it is also an object of the invention to "free the administrator of a computer system complex from an empirical setup of system parameters in order to increase the performance of data backup and restore operations." Clearly, it is one of the purposes of applicants' claimed invention to eliminate the need for human interaction. In contrast, it is the intent of Cookmeyer et al. to fully involve a human user in an interview process.

There are yet other differences between the claimed invention and the cited art. For example, Cookmeyer et al. assume that a data transfer is already in progress and they take it upon themselves to model the network behavior particularly with respect to error analysis that is associated with this transfer or any other transfer. There is no teaching, disclosure, or suggestion in either of the two documents cited by the Examiner with respect to setting up parameters that prospectively optimize a bulk transfer. Even the bulk transfer referred to in the article by Song et al. deals with data packet manipulation. Again, this is a network-centric view of the problem and does not address the issues associated with things like file system capacity, transfer rates, and/or the distribution of data on, between, or among a variety of storage media. Put another way, the two cited documents look at the downstream end of the process while, in contrast, applicants' claimed invention is directed to the upstream portion of a similar process. Those of ordinary skill in the art following the teachings of these two documents would accordingly not be lead to even look in the same direction as is pointed to by applicants' claims.

While there are some similarities with respect to the use of rules based algorithms, the similarities stop there. For example, the Examiner's attention is directed

to column 13, lines 20-30, of the patent to Cookmeyer et al. This portion of the Cookmeyer et al. specification specifically asserts that in their "expert analysis system rules engine the rules in the set each have the following characteristics: . . . (b.) the frequency at which the rule will be evaluated, in seconds, which is adjustable based on user stated network conditions, or by direct override by the user, where -1 indicates the end of the rule's analysis" Accordingly, it is the necessary teaching of Cookmeyer et al. that their rules are evaluated to determine whether or not they are "triggered or fired" on a periodic basis. There is no such aspect to applicants' claimed knowledge base. In point of fact, a periodic reevaluation of the rules on the time scale set forth in Cookmeyer et al. is an operation that would only slow down bulk transfers. It is either the case that the frequency is so fast that multiple evaluations occur which act to slow things down. Or it is the opposite case, namely, that the frequency is so slow that an entire transfer occurs between the period between rule evaluations. If the latter is the case, the entire premise and purpose of the teachings of Cookmeyer et al. would be defeated. Accordingly, it is seen that the teachings of Cookmeyer et al. with respect to rule evaluation are contrary to the teachings found in applicants' specification and claims.

Additionally, it is also noted that, in terms of the differences, it should be pointed out that the resultant activities associated with knowledge-based processing are different. In this respect, the Examiner's attention is directed to column 5, lines 37-41, wherein it is indicated that the invention of Cookmeyer et al. "relates to a knowledge-based, expert analysis system for providing performance and failure diagnostic analysis of networks" [Emphasis added herein.] Accordingly, it is seen here and elsewhere in the patent to Cookmeyer et al. that the fundamental output of their knowledge-base program is a system for providing performance and failure diagnostic analyses. The output of the system in Cookmeyer et al. is therefore seen to be a report or a diagnostic indicator of errors or problematic areas in the network. The output of the knowledge-base system in Cookmeyer et al. is not in any way directed to

the prospective establishment of optimal bulk transfer parameters. Cookmeyer et al. monitor network activity; they do not in any way work to structure the bulk transfer of information in an optimal way and, particularly, they do not do it in an optimal way which uses or relies upon storage system parameters. The patent to Cookmeyer et al. looks at things that are going on presently. It does not plan ahead nor take advantage of throughput-related information to plan ahead for optimal bulk transfers. The teachings from the article by Song et al. do not make up for this deficiency since that article, like the patent to Cookmeyer et al., is network centric. It only discusses how to arrange packets for optimal transfer. It does not concern itself with drive subsystems or storage subsystem parameters. Furthermore, the teachings of Cookmeyer et al. are directed to an expert system which only produces recommendations, not optimal transfer parameters for bulk data.

Accordingly, from the above, it should be fully appreciated that the art cited by the Examiner does not teach, disclose, or suggest that which is found in applicants' independent claims particularly Claim 1 which has been considered herein as an example of applicants' other independent claims as well. With respect to the dependent claims, it is noted that their rejections have been essentially rendered moot in light of the clear analysis presented with respect to the patent to Cookmeyer et al.

It is noted that the present response does not require the payment of any additional fees other than the fee associated with the extension of time requested herewith.

Accordingly, it is now seen that all of the applicants' claims are in condition for allowance. Therefore, early notification of the allowability of applicants' claims is earnestly solicited. Furthermore, if there are any other matters which the Examiner feels could be expeditiously considered and which would forward the prosecution of the instant application, applicants' attorney wishes to indicate his willingness to engage in

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any telephonic communication in furtherance of this objective. Accordingly, applicants' attorney may be reached for this purpose at the numbers provided below.

Respectfully Submitted,

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Date

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